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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/530,472	SAFFRE, FABRICE TP	
	Examiner	Art Unit	
	SULAIMAN NOORISTANY	2446	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 November 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,8-12,14-17,19-27 and 29-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6,8-12,14-17,19-27 and 29-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 May 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Detailed Action

This Office Action is response to the application (10/530472) filed on 11/16/2009.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1, 3-6, 8-12, 14-17, 19-27, 29-33 *are rejected under 112, second paragraph as being indefinite for failing to particularly point and distinctly claim the subject matter which applicant regards as the invention*

In claim 1, the term "***such that***" in line 7, is indefinite and not clear (i.e., it is unclear if anything is actually being existed or performed). However, the claims will be given a broad reasonable interpretation for the purposes of examination as best understood.

In claim 1, "***a node***" in line 7, is indefinite and not clear which node this is referring to? (e.g., is it here a central node, parent node or peripheral node?) However, the claims will be given a broad reasonable interpretation for the purposes of examination as best understood.

In claim 1, the term "***such that***" in line 9, is indefinite and not clear (i.e., it is unclear if anything is actually being existed or performed). However, the claims will be given a broad reasonable interpretation for the purposes of examination as best understood.

In claim 1, "***a node comprising***" in line 13, is indefinite and not clear which node this is referring to? (e.g., is it here a central node, parent node or peripheral node?) However, the claims will be given a broad reasonable interpretation for the purposes of examination as best understood.

In claim 32, the term "*such that*" in line 6, is indefinite and not clear (i.e., it is unclear if anything is actually being existed or performed). However, the claims will be given a broad reasonable interpretation for the purposes of examination as best understood.

In claim 32, "*a node*" in line 6, is indefinite and not clear which node this is referring to? (e.g., is it here a central node, parent node or peripheral node?) However, the claims will be given a broad reasonable interpretation for the purposes of examination as best understood.

In claim 32, the term "*such that*" in line 8, is indefinite and not clear (i.e., it is unclear if anything is actually being existed or performed). However, the claims will be given a broad reasonable interpretation for the purposes of examination as best understood.

In claim 32, "*said nodes*" in line 12 is indefinite and not clear which node this is referring to? (e.g., is it here a central node, parent node or peripheral node?) However, the

claims will be given a broad reasonable interpretation for the purposes of examination as best understood.

In claim 33, the term "*such that*" in line 6, is indefinite and not clear (i.e., it is unclear if anything is actually being existed or performed). However, the claims will be given a broad reasonable interpretation for the purposes of examination as best understood.

In claim 33, "*a node*" in line 6, is indefinite and not clear which node this is referring to? (e.g., is it here a central node, parent node or peripheral node?) However, the claims will be given a broad reasonable interpretation for the purposes of examination as best understood.

In claim 33, the term "*such that*" in line 8, is indefinite and not clear (i.e., it is unclear if anything is actually being existed or performed). However, the claims will be given a broad reasonable interpretation for the purposes of examination as best understood.

In claim 33, "*said nodes*" in line 12 is indefinite and not clear which node this is referring to? (e.g., is it here a central node, parent node or peripheral node?) However, the claims will be given a broad reasonable interpretation for the purposes of examination as best understood.

Claims 3-6, 8-12, 14-17, 19-27, 29-31 are rejected for similar reasons as stated for claims 1, 32-33.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3-6, 8-12, 14-17, 19-27, 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gregerson.** US Patent No. **US 5,699,351** further in view of in view of **O'Toole.** US Patent No. **US 7,117,273**.

Regarding claim 1, Gregerson teaches wherein in a physical network of nodes wherein the a node comprising:

at least one central node **(Area Manager mode "here same as central node" col. 7, lines 26-30),**

a plurality of peripheral nodes **(Fig. 4, kernels "e.g., The kernels that have normal privileges are configured at MinLevel and are not managers" – col. 7, lines 37-46), and**

a hierarchical structure interconnecting said at least one central node and said plurality of peripheral nodes **(PLN 33 is a hierarchical structure imposed by the system administrator on a set of machines executing kernels – col. 6, lines 66-67),**

the hierarchical structure **(PLN 33 is a hierarchical structure– col. 6, lines 66-67)** being configured such that a node is considered to be at a higher level than a parent node to which it connects when joining the network, and network constraints are set such that for each of said at least one central node and each of said plurality of peripheral nodes a maximum number of connections are permitted, and each peripheral node in the network in the network is not allowed to have fewer connections than said at least one central node **(FIG. 12, kernels N3 and N4 (represented by circles 63 and 64, respectively) are the child of kernel N2 "here is same as parent" (represented by circle 61). Kernel N2 is in turn the child of kernel N1 "here is same as central" (represented by circle 62)),**

a parent node identifier arranged to identify a parent node at a lowest level in the network **(Fig. 12 – e.g., Messages d.sub.1 through d.sub.3 represent heartbeat messages from child to parent, while messages e.sub.1 through e.sub.3 represent heartbeat acknowledgements from parent to child "here is same as to identify a parent node" – col. 10, lines 41-52)** that is able to maintain secondary connections to other nodes in the network of the same lowest level **(FIG. 12, kernels N3 and N4 (represented by circles 63 and 64, respectively) are the child of kernel N2 "N2 here is same as parent that has separated connections (e.g., kernels N3 is the first or primary and N4 is the second or secondary connection) at the same level" – col. 10, lines 41-52);**

a connection initiator and maintaining a specified number k-1 of further secondary connections between the node and other nodes in the network having the

same level in the hierarchy as the node **(A kernel at level n is termed to be a child of its parent kernel at level n+1 provided that two kernels have the same name above level n – Col. 7, lines 41-44)**;

wherein the network has a topology type in which each node joining the network is constrained by the same connection rules to have a maximum number of k connections **(The present invention is a dynamic, symmetrical "here is same as every node will have the MAX number of connection based on a dynamic, symmetrical system", distributed, real-time, peer-to-peer system comprised of an arbitrary number of identical (semantically equivalent) instances, i.e., kernels, that together form a logical tree e.g., Figs. 14, – col. 2, lines 50-54);**

if the node is a peripheral node the node has at least the same number of connections as more central nodes in the network **(Fig. 14, unit 73-74)**.

a connection initiator and maintainer arranged to initiate and maintain a specified number k-1 of further connections between the node and other nodes in the network having the same level in the hierarchy as the node **(Fig. 4, A kernel at level n is termed to be a child of its parent kernel at level n+1 provided that the two kernels have the same name above level n.-- col. 7, lines 37-46; FIG. 12, kernels N3 and N4 (represented by circles 63 and 64, respectively) are the child of kernel N2 "N2 here is same as parent" (represented by circle 61). Kernel N2 is in turn the child of kernel N1 "N1 here is same as central" (represented by circle 62))**, and which are advertising a spare connection **(Fig. 31-33 -- Route Advertisement Process).**

However, Gregerson is merely disclosing the terms join or rejoining “here is same reallocating” and de-registering “here is same as terminating” *of the nodes*”.

O'Toole teaches that is well known to utilize by requesting one of the secondary connections of the parent node to other nodes in the network of the same level to be terminated and reallocated to the node if the identified parent node has no free links to become a primary connection between the identified parent node and the node at a lower level in the network hierarchy **(Each child node periodically checks in with its parent nodes, and the parent nodes can thus determine when a child node has terminated a relationship with the parent or created “here is same as re-allocated” a new relationship with a new parent -- Abstract)** in order to make the system more efficient when changes in relationships propagate upward through the network of nodes so that each node maintains a map of the relationships among the descendants of that node.

Thus, it would have been obvious to one ordinary skill in the art to modify Gregerson's invention by utilizing a technique for maintaining a map of node relationships for a network of nodes (e.g., network of computers). In one example, the map of node relationships represents relationships overlaying and typically different from the network of physical connections among the nodes. Each child node periodically checks in with its parent nodes, and the parent nodes can thus determine when a child node has terminated a relationship with the parent or created a new relationship with a new parent. Changes in relationships propagate upward through the network of nodes so that each node maintains a map of the relationships among the

descendants of that node. A root node receives the propagated change relationship information and maintains a map of the entire network and valid pathways through the network, as taught by O'Toole.

Regarding claim 3, Gregerson and O'Toole together taught the method of a node as in claim 1 above. Gregerson further teaches wherein to attempt to maintain the specified number of k-1 further connections between the node and other nodes in the network by periodically carrying out:

for each unallocated one of the k-1 connections, selecting a node from one or more candidate nodes, and forming a connection with the selected node **(A kernel enters the network by running the Login process to locate its parent kernel, Col. 7, Lines 56-67)**,

O'Toole further teaches wherein until either the k-1 further connections have been successfully completed or there are no more candidate nodes **(FIG. 2 illustrates an example of relationships among nodes in a network, including a creation signal and a termination signal generated by nodes configured to operate in accordance with embodiments of the invention – col. 6, lines 30-33).**

Regarding claim 4 Gregerson and O'Toole together taught the method of a node as in claim 1 above. Gregerson further teaches wherein the step of selecting the peer node comprises selecting the peer node at random from the one or more candidate nodes **(The present invention is a dynamic, Symmetrical, distributed, real-time, peer-to-**

peer system comprised of an arbitrary "here is same as random" number of identical, Col. 2, Lines 46-53).

O'Toole further teaches **(nodes are chosen at random – Col. 31, lines 26-27).**

Regarding claim 5, Gregerson and O'Toole together taught the method of a node as in claim 1 above. Gregerson further teaches wherein the step of selecting the node comprises selecting the node on the basis of the range of the candidate nodes to the node **(The configuration parameter MaxStatus imposes a ceiling on the highest level of which the kernel can be a manager. A kernel at level n is termed to be a child of its parent kernel at level n+l -- Col. 7, Lines 39-44).**

Regarding claim 6, Gregerson and O'Toole together taught the method of a node as in claim 1 above. Gregerson further teaches wherein the network comprises an overlay network formed over an underlying network of nodes **(Fig. 14, underlying mix of physical topologies -- Col. 2, Lines 59-60)**, and wherein the range between a candidate node and the node comprises the number of links between them in the underlying network **(A kernel at level n is termed to be a child of its parent kernel at level n+l provided that the two kernels have the same name above level n -- Col. 7, Lines 39-44).**

Regarding claim 8, Gregerson and O'Toole together taught the method of a node as in claim 1 above. O'Toole further teaches wherein to identify another node as a

prospective parent node on the basis of the range of the other node to the node **(Fig. 1, unit 33 – sample map – col. 8, lines 26-27).**

Regarding claim 9, Gregerson and O'Toole together taught the method of a node as in claim 1 above. O'Toole further teaches wherein to identify another node as a prospective parent node if it is within a specified range of the node **(Fig. 1, unit 33 – sample map – col. 8, lines 26-27).**

Regarding claim 10, Gregerson and O'Toole together taught the method of a node as in claim 1 above. Gregerson further teaches wherein in the event that the primary connection fails **(PLN employs a system of "heartbeat" messages, which is used to monitor the status of nodes within the network and identify network failures, Col. 6, Lines 22-24).**

O'Toole further teaches wherein in the event that the primary connection fails to re-establish a primary connection with another node which is at a lower level in the network hierarchy than the node **(FIG. 2 illustrates an example of relationships among nodes in a network, including a creation signal and a termination signal generated by nodes configured to operate in accordance with embodiments of the invention – col. 6, lines 30-33).**

Regarding claim 11, Gregerson and O'Toole together taught the method of a node as in claim 1 above. Gregerson further teaches wherein in which the specified number k of

connections is substantially the same for every node **(A kernel at level n is termed to be a child of its parent kernel at level n+l provided that the two kernels have the same name above level n, Col. 7, Lines 39-44; The present invention is a dynamic, Symmetrical, distributed, real-time, peer-to-peer system Col. 2, Lines 46-53)).**

Claim 12 list all the same elements of **claim 1**, but in storage system rather than method form. Therefore, the supporting rationale of the rejection to **claim 1** applies equally as well to **claim 12**.

Regarding claim 14, Gregerson and O'Toole together taught the method of a node as in claim 12 above. Gregerson further teaches wherein to attempt to maintain the specified number of k-1 further connections between the node and other nodes in the network by periodically carrying out:

for each unallocated one of the k-1 connections, selecting a node from one or more candidate nodes, and forming a connection with the selected node **(A kernel enters the network by running the Login process to locate its parent kernel, Col. 7, Lines 56-67),**

O'Toole further teaches wherein until either the k-1 further connections have been successfully completed or there are no more candidate nodes **(FIG. 2 illustrates an example of relationships among nodes in a network, including a creation signal and a termination signal generated by nodes configured to operate in**

accordance with embodiments of the invention – col. 6, lines 30-33).

Regarding claim 15, Gregerson and O'Toole together taught the method of a node as in claim 12 above. Gregerson further teaches wherein the step of selecting the peer node comprises selecting the peer node at random from the one or more candidate nodes **(The present invention is a dynamic, Symmetrical, distributed, real-time, peer-to-peer system comprised of an arbitrary "here is same as random" number of identical, Col. 2, Lines 46-53).**

O'Toole further teaches **(nodes are chosen at random – Col. 31, lines 26-27).**

Regarding claim16, Gregerson and O'Toole together taught the method of a node as in claim 12 above. Gregerson further teaches wherein the step of selecting the node comprises selecting the node on the basis of the range of the candidate nodes to the node **(The configuration parameter MaxStatus imposes a ceiling on the highest level of which the kernel can be a manager. A kernel at level n is termed to be a child of its parent kernel at level n+l -- Col. 7, Lines 39-44).**

Regarding claim17, Gregerson and O'Toole together taught the method of a node as in claims 12 above. Gregerson further teaches wherein the network comprises an overlay network formed over an underlying network of nodes **(Fig. 14, underlying mix of physical topologies -- Col. 2, Lines 59-60)**, and wherein the range between a candidate node and the node comprises the number of links between them in the

underlying network **(A kernel at level n is termed to be a child of its parent kernel at level n+l provided that the two kernels have the same name above level n -- Col. 7, Lines 39-44).**

Regarding claim 19, Gregerson and O'Toole together taught the method of a node as in claims 12, above. O'Toole further teaches wherein to identify another node as a prospective parent node on the basis of the range of the other node to the node **(Fig. 1, unit 33 – sample map – col. 8, lines 26-27).**

Regarding claim 20, Gregerson and O'Toole together taught the method of a node as in claim 12 above. O'Toole further teaches wherein to identify another node as a prospective parent node if it is within a specified range of the node **(Fig. 1, unit 33 – sample map – col. 8, lines 26-27).**

Regarding claim 21, Gregerson and O'Toole together taught the method of a node as in claim 12 above. Gregerson further teaches wherein in the event that the primary connection fails **(PLN employs a system of "heartbeat" messages, which is used to monitor the status of nodes within the network and identify network failures, Col. 6, Lines 22-24).**

O'Toole further teaches wherein in the event that the primary connection fails to re-establish a primary connection with another node which is at a lower level in the network hierarchy than the node **(FIG. 2 illustrates an example of relationships**

among nodes in a network, including a creation signal and a termination signal generated by nodes configured to operate in accordance with embodiments of the invention – col. 6, lines 30-33).

Regarding claim 22, Gregerson and O'Toole together taught the method of a node as in claim 12 above. Gregerson further teaches wherein in which the specified number k of connections is substantially the same for every node **(A kernel at level n is termed to be a child of its parent kernel at level n+l provided that the two kernels have the same name above level n, Col. 7, Lines 39-44; The present invention is a dynamic, Symmetrical, distributed, real-time, peer-to-peer system Col. 2, Lines 46-53)).**

Regarding claim 23, Gregerson and O'Toole together taught the method of a node as in claim 12 above. O'Toole further teaches wherein a tangible data store containing a computer program comprising instructions for causing one or more processors to operate as the node when the instructions are executed by the processor or processors **(Fig. 1, unit 33 – 24 NODE D – col. 8, lines 15-30).**

Regarding claim 24, Gregerson and O'Toole together taught the method of a node as in claim 12 above. O'Toole further teaches wherein a storage medium carrying computer readable code representing instructions for causing one or more processors to operate as the node when the instructions are executed by the processor or

processors **(Fig. 1, unit 33 – 24 NODE D – col. 8, lines 15-30).**

Regarding claim 26, Gregerson and O'Toole together taught the method of a node as in claim12 above. O'Toole further teaches wherein a tangible data store containing a computer program comprising instructions for causing one or more processors to operate as the node when the instructions are executed by the processor or processors **(Fig. 1, unit 33 – 24 NODE D – col. 8, lines 15-30).**

Regarding claim 27, Gregerson and O'Toole together taught the method of a node as in claim 12 above. O'Toole further teaches wherein a storage medium carrying computer readable code representing instructions for causing one or more processors to operate as the node when the instructions are executed by the processor or processors **(Fig. 1, unit 33 – 24 NODE D – col. 8, lines 15-30).**

Regarding claims 29 Gregerson and O'Toole together taught the method of a node as in claim 12 above. O'Toole further teaches wherein the node is adapted to:

upon receipt of a request from a further node desiring to form its primary connection with the node and in the event that none of the k- 1 of further connections of the node is unallocated, then to: select one of the further k-1 connections which is not a primary connection for one of the other nodes; and to re-allocate that selected further connection to the further node so as to form the primary connection for the further node **(The technique includes identifying resources that join the network by switching**

from an inactive to an active state; and informing the requester the availability of the requested resource, Abstract, Lines 8-11).

Regarding claim 30 Gregerson and O'Toole together taught the method of a node as in claim 12 above. O'Toole further teaches wherein the node is adapted to:

upon receipt of a request from a further node desiring to form its primary connection with the node and in the event that none of the k- 1 of further connections of the node is unallocated, then to: select one of the further k-1 connections which is not a primary connection for one of the other nodes; and to re-allocate that selected further connection to the further node so as to form the primary connection for the further node **(The technique includes identifying resources that join the network by switching from an inactive to an active state; and informing the requester the availability of the requested resource, Abstract, Lines 8-11).**

Claim 31 list all the same elements of **claim 1**, but in method rather than network node form. Therefore, the supporting rationale of the rejection to **claim 1** applies equally as well to **claim 31**.

Claim 32 list all the same elements of **claim 1, 33**, but in storage system rather than network node form. Therefore, the supporting rationale of the rejection to **claim 1, 33** applies equally as well to **claim 32**.

Regarding claim 33, Gregerson teaches wherein a virtual overlap network formed on top of an existing physical network of nodes, wherein the virtual overlap network comprises:

at least one central node **(Area Manager mode "here same as central node" col. 7, lines 26-30)**,

a plurality of peripheral nodes **(Fig. 4, kernels "e.g., The kernels that have normal privileges are configured at MinLevel and are not managers" – col. 7, lines 37-46)**, and

a hierarchical structure interconnecting said at least one central node and said plurality of peripheral nodes **(PLN 33 is a hierarchical structure imposed by the system administrator on a set of machines executing kernels – col. 6, lines 66-67)**, the hierarchical structure **(PLN 33 is a hierarchical structure– col. 6, lines 66-67)** being configured such that a node is considered to be at a higher level than a parent node to which it connects when joining the network, and network constraints are set such that for each of said at least one central node and each of said plurality of peripheral nodes a maximum number of connections are permitted, and each peripheral node in the network in the network is not allowed to have fewer connections than said at least one central node **(FIG. 12, kernels N3 and N4 (represented by circles 63 and 64, respectively) are the child of kernel N2 "here is same as parent" (represented by circle 61). Kernel N2 is in turn the child of kernel N1 "here is same as central" (represented by circle 62));**

wherein said nodes being interconnected and disconnected from each other for communication purposes **(FIG. 12, kernels N3 and N4 (represented by circles 63 and 64, respectively) are the child of kernel N2 "here is same as parent" – col. 10, lines 41-52);**

each node being arranged (a) to identify a parent node at the lowest level in the network **(Fig. 12 – e.g., Messages d.sub.1 through d.sub.3 represent heartbeat messages from child to parent, while messages e.sub.1 through e.sub.3 represent heartbeat acknowledgements from parent to child "here is same as to identify a parent node" – col. 10, lines 41-52)** that is able to maintain secondary connections to other nodes in the network of the same lowest level **(FIG. 12, kernels N3 and N4 (represented by circles 63 and 64, respectively) are the child of kernel N2 "N2 here is same as parent that has separated connections "N3 and N4 here is same as secondary connection" at the same level" – col. 10, lines 41-52);**

(c) to initiate and maintain a specified number k-1 of further connections between the node and other nodes in the network having the same level in the hierarchy as the node **(Fig. 4, A kernel at level n is termed to be a child of its parent kernel at level n+1 provided that the two kernels have the same name above level n.--col. 7, lines 37-46; e.g., in FIG. 12, kernels N3 and N4 (represented by circles 63 and 64, respectively) are the child of kernel N2 "N2 here is same as parent" (represented by circle 61). Kernel N2 is in turn the child of kernel N1 "N1 here is same as central" (represented by circle 62))**;

wherein the network has a topology type in which each node joining the network is constrained by the same connection rules to have a maximum number of k connections **(The present invention is a dynamic, symmetrical "here is same as every node will have the MAX number of connection based on a dynamic, symmetrical system", distributed, real-time, peer-to-peer system comprised of an arbitrary number of identical (semantically equivalent) instances, i.e., kernels, that together form a logical tree e.g., Figs. 14, – col. 2, lines 50-54),** and which are advertising a spare connection **(Fig. 31-33 -- Route Advertisement Process).**

However, Gregerson is merely disclosing the terms join or rejoining "here is same reallocating" and de-registering "here is same as terminating" *of the nodes*".

O'Tool further teaches that it is well known to have a system wherein (b) to request one of the second connections of the parent node to other nodes in the network of the same level be terminated and reallocated to the node if the identified parent node has no free links to become a primary connection between the identified parent node and the node lower level in the network hierarchy **(Each child node periodically checks in with its parent nodes, and the parent nodes can thus determine when a child node has terminated a relationship with the parent or created "here is same as re-allocated" a new relationship with a new parent -- Abstract)** in order to make the system more efficient when changes in relationships propagate upward through the network of nodes so that each node maintains a map of the relationships among the descendants of that node.

Thus, it would have been obvious to one ordinary skill in the art to modify Gregerson's invention by utilizing a technique for maintaining a map of node relationships for a network of nodes (e.g., network of computers). In one example, the map of node relationships represents relationships overlaying and typically different from the network of physical connections among the nodes. Each child node periodically checks in with its parent nodes, and the parent nodes can thus determine when a child node has terminated a relationship with the parent or created a new relationship with a new parent. Changes in relationships propagate upward through the network of nodes so that each node maintains a map of the relationships among the descendants of that node. A root node receives the propagated change relationship information and maintains a map of the entire network and valid pathways through the network, as taught by O'Tool.

Response to Arguments

Applicant's arguments with respect to claim(s) 1, 3-6, 8-12, 14-17, 19-27, 29-33 have been considered but are moot in view of the new ground(s) of rejection.

Applicant Argument

The Examiner has still failed to point out where in the prior art Connection rules are applied by nodes when new nodes join the network, so that each of the nodes in the network implement a globally constrained network topology.

Examiner Response:

With respect to Applicant argument, Gregerson discloses system which is a dynamic, Symmetrical, distributed, real-time, peer-to-peer system Col. 2, Lines 46-53. For example, as new resources join (or rejoin) the network, the kernel residing at each node, and thus each resource connected to that node, automatically and immediately becomes accessible to all applications using the system. The role(s) assumed by any node within the managerial hierarchy employed (e.g., area manager, domain manager, network manager, etc.) is arbitrary, i.e., any node can assume one or multiple roles within the hierarchy, and assuming one role neither requires nor precludes assumption of any other role. Further, the roles dynamically change based on the requirements of the network, i.e., as one or more nodes enter or leave the network. Thus, the individual kernels dynamically locate one another and negotiate the roles played by the associated nodes in managing the network hierarchy without regard to their physical location. In addition, the number of possible roles or levels that may be assumed by any node is not limited and may be selected based on the particular requirements of the networking environment – col. 3, lines 13-30. Therefore, Examiner maintains the rejection.

Applicant Argument

However, nothing in Gregerson teaches constraining a node to have a particular number of siblings or to connect to them in a particular way or disconnect from them under certain circumstances such as those the Applicant's claimed invention outlines.

Examiner Response:

With respect to Applicant argument, O'Toole discloses in Fig. 1, unit 33 "the map 31 is represented as a table (e.g., sample map 33), which is stored as a database, list, or other suitable data structure for representing the relationships among the nodes 24. In addition, the sample map 33 shows an example of a map 32 as maintained for node D, 24. The sample map 33 indicates that the node D, 24, has node A, 24, as a parent and that node D, 24, has two children node E, 24, and node G, 24. The sample map 33 also indicates that node E, 24, has node D, 24, as its parent and that node E, 24, has node F, 24, as its child. In addition, the sample map 33 shows that node F, 24, has node E, 24, as its parent and that node F, 24, does not have any child nodes. Sample map 33 also shows that node G, 24, has node D, 24, as its parent. The map maintainer 34 maintains the map 31 based on change information (e.g., change relationship signals 25) that it receives from lower level nodes in the network 20 (here is same as "*constraining a node to have a particular number of siblings*). The change relationship signal 25 is a signal or message indicating a change in the relationship between nodes 24, such as the relationship 44 between node E, 24, and node F, 24. (Relationships 44 will be discussed in more detail for FIG. 2.) In one embodiment, the change relationship signal is a termination signal 49 or creation signal 52, (col. 8, lines 41-59), which is the same as "disconnect from them under certain circumstances." Therefore, Examiner maintains the rejection.

Applicant Argument

A person who reads O'Toole or Gregerson, even in combination, would not be taught to impose a constraint set on the network so that when new nodes join the network, the connections formed by one node can be changed automatically by that node to ensure that within the network as a whole the rules are applied.

Examiner Response:

With respect to Applicant argument, Gregerson discloses system which is a dynamic, Symmetrical, distributed, real-time, peer-to-peer system Col. 2, Lines 46-53. For example, as new resources join (or rejoin) the network, the kernel residing at each node, and thus each resource connected to that node, automatically and immediately becomes accessible to all applications using the system. The role(s) assumed by any node within the managerial hierarchy employed (e.g., area manager, domain manager, network manager, etc.) is arbitrary, i.e., any node can assume one or multiple roles within the hierarchy, and assuming one role neither requires nor precludes assumption of any other role. Further, the roles dynamically change based on the requirements of the network, i.e., as one or more nodes enter or leave the network. Thus, the individual kernels dynamically locate one another and negotiate the roles played by the associated nodes in managing the network hierarchy without regard to their physical location. In addition, the number of possible roles or levels that may be assumed by any node is not limited and may be selected based on the particular requirements of the networking environment – col. 3, lines 13-30. Therefore, Examiner maintains the rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sulaiman Nooristany whose telephone number is (571) 270-1929. The examiner can normally be reached on M-F from 9 to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff Pwu, can be reached on (571) 272-6798. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is

available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sulaiman Nooristany 03/8/2010

/Jeffrey Pwu/

Supervisory Patent Examiner, Art Unit 2446